

Applicant : Vincent P. Stanton, Jr.  
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(l) nucleotide 5573 wherein X is T;  
(m) nucleotide 5659 wherein X is C;  
(n) nucleotide 5678 wherein X is C;  
(o) nucleotide 5874 wherein X is T; and  
(p) nucleotide 5934 wherein X is G  
or the complement thereof.

*A1*  
~~17~~  
~~2. 18~~ The isolated nucleic acid probe of claim ~~17~~ comprising at least two of:

- (a) nucleotide 194 wherein X is G;
- (b) nucleotide 294 wherein X is T;
- (c) nucleotide 1136 wherein X is A;
- (d) nucleotide 1252 wherein X is T;
- (e) nucleotide 1334 wherein X is A;
- (f) nucleotide 1699 wherein X is C;
- (g) nucleotide 3150 wherein X is G;
- (h) nucleotide 3207 wherein X is T;
- (i) nucleotide 3209 wherein X is A;
- (j) nucleotide 5444 wherein X is C;
- (k) nucleotide 5551 wherein X is A;
- (l) nucleotide 5573 wherein X is T;
- (m) nucleotide 5659 wherein X is C;
- (n) nucleotide 5678 wherein X is C;
- (o) nucleotide 5874 wherein X is T; and
- (p) nucleotide 5934 wherein X is G

or the complement thereof.

~~17~~  
~~3. 19~~ The probe of claim ~~17~~ comprising no more than 500 contiguous nucleotides of SEQ ID NO:1.

~~19~~  
~~4. 20~~ The probe of claim ~~19~~ comprising no more than 200 contiguous nucleotides of SEQ ID NO:1.

~~17~~  
~~5. 21~~ The probe of claim ~~17~~ comprising no more than 100 contiguous nucleotides of SEQ ID NO:1.

~~17~~  
~~6. 22~~ The probe of claim ~~17~~ comprising no more than 50 contiguous nucleotides of SEQ ID NO:1.

~~12~~  
~~7. 23~~ The probe of claim ~~12~~ comprising DNA.

~~17~~  
~~8. 24~~ The probe of claim ~~17~~ comprising a peptide nucleic acid.

~~17~~  
~~9. 25~~ The probe of claim ~~17~~ further comprising a detectable label.

~~10.~~<sup>26</sup> The probe of claim ~~9~~<sup>25</sup> wherein the detectable label is a fluorescent label.

~~11.~~<sup>27</sup> A method comprising

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;  
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:1, the probe comprising at least one of:

- A1
- (i) nucleotide 194 wherein X is G;
  - (ii) nucleotide 294 wherein X is T;
  - (iii) nucleotide 1136 wherein X is A;
  - (iv) nucleotide 1252 wherein X is T;
  - (v) nucleotide 1334 wherein X is A;
  - (vi) nucleotide 1699 wherein X is C;
  - (vii) nucleotide 3150 wherein X is G;
  - (viii) nucleotide 3207 wherein X is T;
  - (ix) nucleotide 3209 wherein X is A;
  - (x) nucleotide 5444 wherein X is C;
  - (xi) nucleotide 5551 wherein X is A;
  - (xii) nucleotide 5573 wherein X is T;
  - (xiii) nucleotide 5659 wherein X is C;
  - (xiv) nucleotide 5678 wherein X is C;
  - (xv) nucleotide 5874 wherein X is T; and
  - (xvi) nucleotide 5934 wherein X is G

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~12.~~<sup>28</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:2, the probe comprising at least one of:

- (a) nucleotide 3434 wherein X is T;
- (b) nucleotide 4313 wherein X is C;
- (c) nucleotide 4799 wherein X is G;
- (d) nucleotide 5255 wherein X is T;
- (e) nucleotide 5455 wherein X is A;
- (f) nucleotide 5507 wherein X is C;
- (g) nucleotide 5810 wherein X is T;
- (h) nucleotide 6128 wherein X is T;
- (i) nucleotide 6626 wherein X is T;
- (j) nucleotide 6686 wherein X is T;

or the complement thereof.

~~13.~~<sup>29</sup> The isolated nucleic acid probe of claim ~~12~~<sup>28</sup> comprising at least two of:

- (a) nucleotide 3434 wherein X is T;

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- (b) nucleotide 4313 wherein X is C;
- (c) nucleotide 4799 wherein X is G;
- (d) nucleotide 5255 wherein X is T;
- (e) nucleotide 5455 wherein X is A;
- (f) nucleotide 5507 wherein X is C;
- (g) nucleotide 5810 wherein X is T;
- (h) nucleotide 6128 wherein X is T;
- (i) nucleotide 6626 wherein X is T;
- (j) nucleotide 6686 wherein X is T;

or the complement thereof.

~~14.~~<sup>30</sup> The probe of claim ~~12~~<sup>28</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:1.

~~15.~~<sup>31</sup> The probe of claim ~~12~~<sup>28</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:2.

~~16.~~<sup>32</sup> The probe of claim ~~12~~<sup>28</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:2.

~~17.~~<sup>33</sup> The probe of claim ~~12~~<sup>28</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:2.

~~18.~~<sup>34</sup> The probe of claim ~~12~~<sup>28</sup> comprising DNA.

~~19.~~<sup>35</sup> The probe of claim ~~12~~<sup>28</sup> comprising a peptide nucleic acid.

~~20.~~<sup>36</sup> The probe of claim ~~12~~<sup>28</sup> further comprising a detectable label.

~~21.~~<sup>37</sup> The probe of claim ~~20~~<sup>36</sup> wherein the detectable label is a fluorescent label.

~~22.~~<sup>38</sup> A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:2, the probe comprising at least one of:
  - (i) nucleotide 3434 wherein X is T;
  - (ii) nucleotide 4313 wherein X is C;
  - (iii) nucleotide 4799 wherein X is G;
  - (iv) nucleotide 5255 wherein X is T;
  - (v) nucleotide 5455 wherein X is A;
  - (vi) nucleotide 5507 wherein X is C;
  - (vii) nucleotide 5810 wherein X is T;
  - (viii) nucleotide 6128 wherein X is T;

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(ixi) nucleotide 6626 wherein X is T;  
(x) nucleotide 6686 wherein X is T;  
or the complement thereof; and  
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~23.~~ <sup>39</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:3, the probe comprising at least one of:

- (a) nucleotide 166 wherein X is C;  
(b) nucleotide 577 wherein X is G;  
(c) nucleotide 638 wherein X is G;  
(d) nucleotide 1708 wherein X is G;  
(e) nucleotide 3432 wherein X is C;  
(f) nucleotide 3682 wherein X is T;  
(g) nucleotide 3730 wherein X is A;  
(h) nucleotide 3925 wherein X is G;  
(i) nucleotide 3937 wherein X is C;

or the complement thereof.

~~24.~~ <sup>40</sup> The isolated nucleic acid probe of claim ~~23~~ <sup>39</sup> comprising at least two of:

- (a) nucleotide 166 wherein X is C;  
(b) nucleotide 577 wherein X is G;  
(c) nucleotide 638 wherein X is G;  
(d) nucleotide 1708 wherein X is G;  
(e) nucleotide 3432 wherein X is C;  
(f) nucleotide 3682 wherein X is T;  
(g) nucleotide 3730 wherein X is A;  
(h) nucleotide 3925 wherein X is G;  
(i) nucleotide 3937 wherein X is C;

or the complement thereof.

~~25.~~ <sup>41</sup> The probe of claim ~~23~~ <sup>39</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:3.

~~26.~~ <sup>42</sup> The probe of claim ~~23~~ <sup>39</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:3.

~~27.~~ <sup>43</sup> The probe of claim ~~23~~ <sup>39</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:3.

~~28.~~ <sup>44</sup> The probe of claim ~~23~~ <sup>39</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:3.

~~29.~~ <sup>45</sup> The probe of claim ~~23~~ <sup>39</sup> comprising DNA.

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~~30.46~~<sup>39</sup> The probe of claim ~~23~~<sup>39</sup> comprising a peptide nucleic acid.

~~31.47~~<sup>39</sup> The probe of claim ~~23~~<sup>39</sup> further comprising a detectable label.

~~32.48~~<sup>47</sup> The probe of claim ~~31~~<sup>47</sup> wherein the detectable label is a fluorescent label.

~~33.49~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:3, the probe comprising at least one of:

- (i) nucleotide 166 wherein X is C;  
(ii) nucleotide 577 wherein X is G;  
(iii) nucleotide 638 wherein X is G;  
(iv) nucleotide 1708 wherein X is G;  
(v) nucleotide 3432 wherein X is C;  
(vi) nucleotide 3682 wherein X is T;  
(vii) nucleotide 3730 wherein X is A;  
(viii) nucleotide 3925 wherein X is G;  
(ix) nucleotide 3937 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~34.50~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:4, the probe comprising at least one of:

- (a) nucleotide 175 wherein X is A;  
(b) nucleotide 341 wherein X is G;  
(c) nucleotide 791 wherein X is T;  
(d) nucleotide 1067 wherein X is A;  
(e) nucleotide 1337 wherein X is A;  
(f) nucleotide 1997 wherein X is C;  
(g) G is inserted after nucleotide 2106;  
(h) nucleotide 2582 wherein X is G;  
(i) nucleotide 2617 wherein X is T;  
(j) nucleotide 2652 wherein X is C;

or the complement thereof.

~~35.51~~<sup>50</sup> The isolated nucleic acid probe of claim ~~34~~<sup>50</sup> comprising at least two of:

- (a) nucleotide 175 wherein X is A;  
(b) nucleotide 341 wherein X is G;  
(c) nucleotide 791 wherein X is T;  
(d) nucleotide 1067 wherein X is A;

- (e) nucleotide 1337 wherein X is A;
- (f) nucleotide 1997 wherein X is C;
- (g) G is inserted after nucleotide 2100;
- (h) nucleotide 2582 wherein X is G;
- (i) nucleotide 2617 wherein X is T;
- (j) nucleotide 2652 wherein X is C;

or the complement thereof.

36. <sup>50</sup>~~52~~ The probe of claim <sup>50</sup>~~34~~ comprising no more than 500 contiguous nucleotides of SEQ ID NO:4.

37. <sup>50</sup>~~53~~ The probe of claim <sup>50</sup>~~34~~ comprising no more than 200 contiguous nucleotides of SEQ ID NO:4.

38. <sup>50</sup>~~54~~ The probe of claim <sup>50</sup>~~34~~ comprising no more than 100 contiguous nucleotides of SEQ ID NO:4.

39. <sup>50</sup>~~55~~ The probe of claim <sup>50</sup>~~34~~ comprising no more than 50 contiguous nucleotides of SEQ ID NO:4.

40. <sup>50</sup>~~56~~ The probe of claim <sup>50</sup>~~34~~ comprising DNA.

41. <sup>50</sup>~~57~~ The probe of claim <sup>50</sup>~~34~~ comprising a peptide nucleic acid.

42. <sup>50</sup>~~58~~ The probe of claim <sup>50</sup>~~34~~ further comprising a detectable label.

43. <sup>50</sup>~~59~~ The probe of claim <sup>50</sup>~~42~~ wherein the detectable label is a fluorescent label.

44. <sup>50</sup>~~60~~ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:4, the probe comprising at least one of:
  - (i) nucleotide 175 wherein X is A;
  - (ii) nucleotide 341 wherein X is G;
  - (iii) nucleotide 791 wherein X is T;
  - (iv) nucleotide 1067 wherein X is A;
  - (v) nucleotide 1337 wherein X is A;
  - (vi) nucleotide 1997 wherein X is C;
  - (vii) wherein G is inserted after nucleotide 2100;
  - (viii) nucleotide 2582 wherein X is G;
  - (ix) nucleotide 2617 wherein X is T;
  - (x) nucleotide 2652 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~45.61~~<sup>61</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO: 5, the probe comprising at least one of:

- (a) nucleotide 431 wherein X is G;
- (b) nucleotide 441 wherein X is G;
- (c) nucleotide 498 wherein X is T;
- (d) nucleotide 579 wherein X is C;
- (e) nucleotide 599 wherein X is C;

or the complement thereof.

~~46.62~~<sup>61</sup> The isolated nucleic acid probe of claim ~~45~~<sup>61</sup> comprising at least two of:

- (a) nucleotide 431 wherein X is G;
- (b) nucleotide 441 wherein X is G;
- (c) nucleotide 498 wherein X is T;
- (d) nucleotide 579 wherein X is C;
- (e) nucleotide 599 wherein X is C;

or the complement thereof.

~~47.63~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO: 5.

~~48.64~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO: 5.

~~49.65~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO: 5.

~~50.66~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO: 5.

~~51.67~~<sup>61</sup> The probe claim ~~45~~<sup>61</sup> comprising DNA.

~~52.68~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> comprising a peptide nucleic acid.

~~53.69~~<sup>61</sup> The probe of claim ~~45~~<sup>61</sup> further comprising a detectable label.

~~54.70~~<sup>61</sup> The probe of claim ~~53~~<sup>61</sup> wherein the detectable label is a fluorescent label.

~~55.71~~<sup>61</sup> A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:5, the probe comprising at least one of:

- (i) nucleotide 431 wherein X is G;
- (ii) nucleotide 441 wherein X is G;
- (iii) nucleotide 498 wherein X is T;
- (iv) nucleotide 579 wherein X is C;
- (v) nucleotide 599 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

*AI*  
~~56.72~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:6, the probe comprising at least one of:

- (a) nucleotide 1066 wherein X is C;
- (b) nucleotide 1136 wherein X is G;
- (c) nucleotide 1497 wherein X is A;

or the complement thereof.

~~57.73~~ The isolated nucleic acid probe of claim ~~56~~<sup>72</sup> comprising at least two of:

- (a) nucleotide 1066 wherein X is C;
- (b) nucleotide 1136 wherein X is G;
- (c) nucleotide 1497 wherein X is A;

or the complement thereof.

~~58.74~~ The probe of claim ~~56~~<sup>72</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:6.

~~59.75~~ The probe of claim ~~56~~<sup>72</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:6.

~~60.76~~ The probe of claim ~~56~~<sup>72</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:6.

~~61.77~~ The probe of claim ~~56~~<sup>72</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:6.

~~62.78~~ The probe of claim ~~56~~<sup>72</sup> comprising DNA.

~~63.79~~ The probe of claim ~~56~~<sup>72</sup> comprising a peptide nucleic acid.

~~64.80~~ The probe of claim ~~56~~<sup>72</sup> further comprising a detectable label.

~~65.81~~ The probe of claim ~~64~~<sup>80</sup> wherein the detectable label is a fluorescent label.

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~~66.82~~ A method comprising:  
(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;  
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:6, the probe comprising at least one of:  
(i) nucleotide 1066 wherein X is C;  
(ii) nucleotide 1136 wherein X is G;  
(iii) nucleotide 1497 wherein X is A;  
or the complement thereof; and  
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

A1 ~~67.83~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:7, the probe comprising at least one of:  
(a) nucleotide 276 wherein X is T;  
(b) nucleotide 321 wherein X is C;  
(c) nucleotide 452 wherein X is A;  
(d) C is inserted after nucleotide 457;  
(e) nucleotide 491 wherein X is A;  
(f) nucleotide 533 wherein X is C;  
(g) nucleotide 624 wherein X is C;  
(h) nucleotide 639 wherein X is G;  
(i) nucleotide 655 wherein X is C;  
or the complement thereof.

~~68.84~~ The isolated nucleic acid probe of claim ~~67~~<sup>83</sup> comprising at least two of:  
(a) nucleotide 276 wherein X is T;  
(b) nucleotide 321 wherein X is C;  
(c) nucleotide 452 wherein X is A;  
(d) C is inserted after nucleotide 457;  
(e) nucleotide 491 wherein X is A;  
(f) nucleotide 533 wherein X is C;  
(g) nucleotide 624 wherein X is C;  
(h) nucleotide 639 wherein X is G;  
(i) nucleotide 655 wherein X is C;  
or the complement thereof.

~~69.85~~ The probe of claim ~~67~~<sup>83</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:7.

~~70.86~~ The probe of claim ~~67~~<sup>83</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:7.

~~71.87~~<sup>83</sup> The probe of claim ~~67~~<sup>83</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:7.

~~72.88~~<sup>83</sup> The probe of claim ~~67~~<sup>83</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:7.

~~73.89~~<sup>83</sup> The probe of claim ~~67~~<sup>83</sup> comprising DNA.

~~74.90~~<sup>83</sup> The probe of claim ~~67~~<sup>83</sup> comprising a peptide nucleic acid.

~~75.91~~<sup>83</sup> The probe of claim ~~67~~<sup>83</sup> further comprising a detectable label.

~~76.92~~<sup>91</sup> The probe of claim ~~75~~<sup>91</sup> wherein the detectable label is a fluorescent label.

~~77.93~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:7, the probe comprising at least one of:

- (i) nucleotide 276 wherein X is T;
- (ii) nucleotide 321 wherein X is C;
- (iii) nucleotide 452 wherein X is A;
- (iv) C is inserted after nucleotide 457;
- (v) nucleotide 491 wherein X is A;
- (vi) nucleotide 533 wherein X is C;
- (vii) nucleotide 624 wherein X is C;
- (viii) nucleotide 639 wherein X is G;
- (ix) nucleotide 655 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~78.94~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:8, the probe comprising at least one of:

- (a) nucleotide 701 wherein X is C;
- (b) nucleotide 716 wherein X is G;
- (c) nucleotide 732 wherein X is C;
- (d) nucleotide 1293 wherein X is G;
- (e) nucleotide 1322 wherein X is G;
- (f) nucleotide 1379 wherein X is C;
- (g) nucleotide 1590 wherein X is T;
- (h) nucleotide 1688 wherein X is G;
- (i) nucleotide 2401 wherein X is G;
- (j) nucleotide 2429 wherein X is A;

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(k) nucleotide 2488 wherein X is T;  
(l) nucleotide 2594 wherein X is T;  
(m) nucleotide 2618 wherein X is A;  
(n) nucleotide 3083 wherein X is A;  
(o) nucleotide 3125 wherein X is A;  
(p) nucleotide 3212 wherein X is T;  
(q) nucleotide 3619 wherein X is A;  
(r) nucleotide 3635 wherein X is A;  
(s) nucleotide 4256 wherein X is A;  
(t) nucleotide 4898 wherein X is G;  
(u) nucleotide 5006 wherein X is T;  
(v) nucleotide 5062 wherein X is A;  
(w) nucleotide 5167 wherein X is A;  
(x) nucleotide 11069 wherein X is G;  
(y) nucleotide 11238 wherein X is T;  
(z) nucleotide 11293 wherein X is G;  
(aa) nucleotide 11422 wherein X is C;  
(bb) nucleotide 11686 wherein X is T;  
(cc) nucleotide 12598 wherein X is C;  
(dd) nucleotide 13171 wherein X is C;  
(ee) nucleotide 13298 wherein X is A;  
(ff) nucleotide 13645 wherein X is C;  
(gg) nucleotide 13751 wherein X is A;  
(hh) nucleotide 13782 wherein X is C;  
(ii) nucleotide 13806 wherein X is C;  
(jj) nucleotide 13813 wherein X is C;  
(kk) nucleotide 14479 wherein X is G;  
(ll) T is inserted after nucleotide 14546;  
(mm) nucleotide 14585 wherein X is T;  
(nn) nucleotide 14729 wherein X is A;  
(oo) nucleotide 14787 wherein X is T;  
(pp) nucleotide 14795 wherein X is A;  
(qq) nucleotide 15041 wherein X is C;  
(rr) nucleotide 15343 wherein X is A;  
(ss) nucleotide 15449 wherein X is A;  
(tt) nucleotide 15502 wherein X is A;  
(uu) nucleotide 15545 wherein X is T;  
(vv) nucleotide 15589 wherein X is G;  
(ww) nucleotide 15769 wherein X is T;  
(xx) nucleotide 15839 wherein X is G;  
(yy) nucleotide 16148 wherein X is A;  
(zz) nucleotide 16198 wherein X is G; and  
(aaa) nucleotide 16202 wherein X is T;

or the complement thereof.

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79. <sup>95</sup> The isolated nucleic acid probe of claim <sup>94</sup> 78 comprising at least two of:

- A1
- (a) nucleotide 701 wherein X is C;
  - (b) nucleotide 716 wherein X is G;
  - (c) nucleotide 732 wherein X is C;
  - (d) nucleotide 1293 wherein X is G;
  - (e) nucleotide 1322 wherein X is G;
  - (f) nucleotide 1379 wherein X is C;
  - (g) nucleotide 1590 wherein X is T;
  - (h) nucleotide 1688 wherein X is G;
  - (i) nucleotide 2401 wherein X is G;
  - (j) nucleotide 2429 wherein X is A;
  - (k) nucleotide 2488 wherein X is T;
  - (l) nucleotide 2594 wherein X is T;
  - (m) nucleotide 2618 wherein X is A;
  - (n) nucleotide 3083 wherein X is A;
  - (o) nucleotide 3125 wherein X is A;
  - (p) nucleotide 3212 wherein X is T;
  - (q) nucleotide 3619 wherein X is A;
  - (r) nucleotide 3635 wherein X is A;
  - (s) nucleotide 4256 wherein X is A;
  - (t) nucleotide 4898 wherein X is G;
  - (u) nucleotide 5006 wherein X is T;
  - (v) nucleotide 5062 wherein X is A;
  - (w) nucleotide 5167 wherein X is A;
  - (x) nucleotide 11069 wherein X is G;
  - (y) nucleotide 11238 wherein X is T;
  - (z) nucleotide 11293 wherein X is G;
  - (aa) nucleotide 11422 wherein X is C;
  - (bb) nucleotide 11686 wherein X is T;
  - (cc) nucleotide 12598 wherein X is C;
  - (dd) nucleotide 13171 wherein X is C;
  - (ee) nucleotide 13298 wherein X is A;
  - (ff) nucleotide 13645 wherein X is C;
  - (gg) nucleotide 13751 wherein X is A;
  - (hh) nucleotide 13782 wherein X is C;
  - (ii) nucleotide 13806 wherein X is C;
  - (jj) nucleotide 13813 wherein X is C;
  - (kk) nucleotide 14479 wherein X is G;
  - (ll) nucleotide 14546 wherein X is T;
  - (mm) T is inserted after nucleotide 14546;
  - (nn) nucleotide 14729 wherein X is A;
  - (oo) nucleotide 14787 wherein X is T;
  - (pp) nucleotide 14795 wherein X is A;

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(qq) nucleotide 15041 wherein X is C;  
(rr) nucleotide 15343 wherein X is A;  
(ss) nucleotide 15449 wherein X is A;  
(tt) nucleotide 15502 wherein X is A;  
(uu) nucleotide 15545 wherein X is T;  
(vv) nucleotide 15589 wherein X is G;  
(ww) nucleotide 15769 wherein X is T;  
(xx) nucleotide 15839 wherein X is G;  
(yy) nucleotide 16148 wherein X is A;  
(zz) nucleotide 16198 wherein X is G; and  
(aaa) nucleotide 16202 wherein X is T;

or the complement thereof.

A1 ~~80.96~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:8.

~~81.97~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:8.

~~82.98~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:8.

~~83.99~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:8.

~~84.100~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising DNA.

~~85.101~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> comprising a peptide nucleic acid.

~~86.102~~<sup>94</sup> The probe of claim ~~78~~<sup>94</sup> further comprising a detectable label.

~~87.103~~<sup>102</sup> The probe of claim ~~86~~<sup>102</sup> wherein the detectable label is a fluorescent label.

~~88.104~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:8, the probe comprising at least one of:

- (i) nucleotide 701 wherein X is C;
- (ii) nucleotide 716 wherein X is G;
- (iii) nucleotide 732 wherein X is C;
- (iv) nucleotide 1293 wherein X is G;
- (v) nucleotide 1322 wherein X is G;
- (vi) nucleotide 1379 wherein X is C;

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AI

(vii) nucleotide 1590 wherein X is T;  
(viii) nucleotide 1688 wherein X is G;  
(ix) nucleotide 2401 wherein X is G;  
(x) nucleotide 2429 wherein X is A;  
(xi) nucleotide 2488 wherein X is T;  
(xii) nucleotide 2594 wherein X is T;  
(xiii) nucleotide 2618 wherein X is A;  
(xiv) nucleotide 3083 wherein X is A;  
(xv) nucleotide 3125 wherein X is A;  
(xvi) nucleotide 3212 wherein X is T;  
(xvii) nucleotide 3619 wherein X is A;  
(xviii) nucleotide 3635 wherein X is A;  
(xix) nucleotide 4256 wherein X is A;  
(xx) nucleotide 4898 wherein X is G;  
(xxi) nucleotide 5006 wherein X is T;  
(xxii) nucleotide 5062 wherein X is A;  
(xxiii) nucleotide 5167 wherein X is A;  
(xxiv) nucleotide 11069 wherein X is G;  
(xxv) nucleotide 11238 wherein X is T;  
(xxvi) nucleotide 11293 wherein X is G;  
(xxvii) nucleotide 11422 wherein X is C;  
(xxviii) nucleotide 11686 wherein X is T;  
(xxix) nucleotide 12598 wherein X is C;  
(xxx) nucleotide 13171 wherein X is C;  
(xxxi) nucleotide 13298 wherein X is A;  
(xxxii) nucleotide 13645 wherein X is C;  
(xxxiii) nucleotide 13751 wherein X is A;  
(xxxiv) nucleotide 13782 wherein X is C;  
(xxxv) nucleotide 13806 wherein X is C;  
(xxxvi) nucleotide 13813 wherein X is C;  
(xxxvii) nucleotide 14479 wherein X is G;  
(xxxviii) T is inserted after nucleotide 14546;  
(xxxix) nucleotide 14585 wherein X is T;  
(xl) nucleotide 14729 wherein X is A;  
(xli) nucleotide 14787 wherein X is T;  
(xlii) nucleotide 14795 wherein X is A;  
(xliii) nucleotide 15041 wherein X is C;  
(xliv) nucleotide 15343 wherein X is A;  
(xlv) nucleotide 15449 wherein X is A;  
(xlvi) nucleotide 15502 wherein X is A;  
(xlvii) nucleotide 15545 wherein X is T;  
(xlviii) nucleotide 15589 wherein X is G;  
(xlix) nucleotide 15769 wherein X is T;  
(l) nucleotide 15839 wherein X is G;

(li) nucleotide 16148 wherein X is A;  
(lii) nucleotide 16198 wherein X is G; and  
(liii) nucleotide 16202 wherein X is T  
or the complement thereof; and  
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

*A1*  
~~89.105~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:9, the probe comprising at least one of:

- (a) nucleotide 128 wherein X is A;
- (b) nucleotide 189 wherein X is G;
- (c) nucleotide 524 wherein X is G;
- (d) nucleotide 1399 wherein X is A;
- (e) nucleotide 1464 wherein X is A;
- (f) nucleotide 1636 wherein X is T;
- (g) nucleotide 1738 wherein X is T; and
- (h) nucleotide 2259 wherein X is C;

or the complement thereof.

~~90.106~~ The isolated nucleic acid probe of claim ~~89~~<sup>105</sup> comprising at least two of:

- (a) nucleotide 128 wherein X is A;
- (b) nucleotide 189 wherein X is G;
- (c) nucleotide 524 wherein X is G;
- (d) nucleotide 1399 wherein X is A;
- (e) nucleotide 1464 wherein X is A;
- (f) nucleotide 1636 wherein X is T;
- (g) nucleotide 1738 wherein X is T; and
- (h) nucleotide 2259 wherein X is C;

or the complement thereof.

~~91.107~~ The probe of claim ~~89~~<sup>105</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:9.

~~92.108~~ The probe of claim ~~89~~<sup>105</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:9.

~~93.109~~ The probe of claim ~~89~~<sup>105</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:9.

~~94.110~~ The probe of claim ~~89~~<sup>105</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:9.

~~95.111~~ The probe of claim ~~89~~<sup>105</sup> comprising DNA.

~~96.~~<sup>105</sup>~~112~~ The probe of claim ~~89~~<sup>105</sup> comprising a peptide nucleic acid.

~~97.~~<sup>105</sup>~~113~~ The probe of claim ~~89~~<sup>105</sup> further comprising a detectable label.

~~98.~~<sup>113</sup>~~114~~ The probe of claim ~~97~~<sup>113</sup> wherein the detectable label is a fluorescent label.

~~99.~~<sup>115</sup>~~115~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:

- (i) nucleotide 128 wherein X is A;  
(ii) nucleotide 189 wherein X is G;  
(iii) nucleotide 524 wherein X is G;  
(iv) nucleotide 1399 wherein X is A;  
(v) nucleotide 1464 wherein X is A;  
(vi) nucleotide 1636 wherein X is T;  
(vii) nucleotide 1738 wherein X is T; and  
(viii) nucleotide 2259 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~100.~~<sup>116</sup>~~116~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:

- (a) nucleotide 183 wherein X is A;  
(b) nucleotide 483 wherein X is T;  
(c) nucleotide 601 wherein X is C; and  
(d) nucleotide 1299 wherein X is A;

or the complement thereof.

~~101.~~<sup>116</sup>~~117~~ The isolated nucleic acid probe of claim ~~100~~<sup>116</sup> comprising at least two of:

- (a) nucleotide 183 wherein X is A;  
(b) nucleotide 483 wherein X is T;  
(c) nucleotide 601 wherein X is C; and  
(d) nucleotide 1299 wherein X is A;

or the complement thereof.

~~102.~~<sup>116</sup>~~118~~ The probe of claim ~~100~~<sup>116</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:10.

~~103.~~<sup>116</sup>~~119~~ The probe of claim ~~100~~<sup>116</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:10.

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~~104.~~<sup>126</sup> The probe of claim ~~100~~<sup>116</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:10.

~~105.~~<sup>121</sup> The probe of claim ~~100~~<sup>116</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:10.

~~106.~~<sup>122</sup> The probe of claim ~~100~~<sup>116</sup> comprising DNA.

~~107.~~<sup>123</sup> The probe of claim ~~100~~<sup>116</sup> comprising a peptide nucleic acid.

~~108.~~<sup>124</sup> The probe of claim ~~100~~<sup>116</sup> further comprising a detectable label.

~~109.~~<sup>125</sup> The probe of claim ~~108~~<sup>124</sup> wherein the detectable label is a fluorescent label.

~~110.~~<sup>126</sup> A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:

(i) nucleotide 183 wherein X is A;

(ii) nucleotide 483 wherein X is T;

(iii) nucleotide 601 wherein X is C;

(iv) nucleotide 1299 wherein X is A;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~111.~~<sup>127</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:11, the probe comprising at least one of:

(a) nucleotide 124 wherein X is T;

(b) nucleotide 439 wherein X is A;

(c) CT is inserted after nucleotide 1044;

(d) nucleotide 1331 wherein X is A;

(e) nucleotide 1977 wherein X is A;

(f) nucleotide 2149 wherein X is A;

(g) nucleotide 2467 wherein X is G;

(h) nucleotide 2634 wherein X is G;

(i) nucleotide 2975 wherein X is A;

(j) nucleotide 3116 wherein X is T;

(k) nucleotide 3255 wherein X is C;

(l) nucleotide 3344 wherein X is C;

(m) nucleotide 4051 wherein X is A;

(n) nucleotide 4782 wherein X is A;

(o) nucleotide 5022 wherein X is C;

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- (p) nucleotide 5266 wherein X is A;
- (q) nucleotide 5285 wherein X is G;
- (r) nucleotide 5438 wherein X is A;
- (s) nucleotide 5482 wherein X is T;
- (t) nucleotide 5629 wherein X is A;
- (u) nucleotide 5648 wherein X is T; and
- (v) nucleotide 5731 wherein X is A;

or the complement thereof.

~~112~~<sup>128</sup> The isolated nucleic acid probe of claim ~~111~~<sup>127</sup> comprising at least two of:

- (a) nucleotide 124 wherein X is T;
- (b) nucleotide 439 wherein X is A;
- (c) CT is inserted after nucleotide 1044;
- (d) nucleotide 1331 wherein X is A;
- (e) nucleotide 1977 wherein X is A;
- (f) nucleotide 2149 wherein X is A;
- (g) nucleotide 2467 wherein X is G;
- (h) nucleotide 2634 wherein X is G;
- (i) nucleotide 2975 wherein X is A;
- (j) nucleotide 3116 wherein X is T;
- (k) nucleotide 3255 wherein X is C;
- (l) nucleotide 3344 wherein X is C;
- (m) nucleotide 4051 wherein X is A;
- (n) nucleotide 4782 wherein X is A;
- (o) nucleotide 5022 wherein X is C;
- (p) nucleotide 5266 wherein X is A;
- (q) nucleotide 5285 wherein X is G;
- (r) nucleotide 5438 wherein X is A;
- (s) nucleotide 5482 wherein X is T;
- (t) nucleotide 5629 wherein X is A;
- (u) nucleotide 5648 wherein X is T; and
- (v) nucleotide 5731 wherein X is A;

or the complement thereof.

~~113~~<sup>129</sup> The probe of claim ~~111~~<sup>127</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:11.

~~114~~<sup>130</sup> The probe of claim ~~111~~<sup>127</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:11.

~~115~~<sup>131</sup> The probe of claim ~~111~~<sup>127</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:11.

~~116.~~<sup>132</sup> The probe of claim ~~111~~<sup>127</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:11.

~~117.~~<sup>133</sup> The probe of claim ~~111~~<sup>127</sup> comprising DNA.

~~118.~~<sup>134</sup> The probe of claim ~~111~~<sup>127</sup> comprising a peptide nucleic acid.

~~119.~~<sup>135</sup> The probe of claim ~~111~~<sup>127</sup> further comprising a detectable label.

~~120.~~<sup>136</sup> The probe of claim ~~119~~<sup>135</sup> wherein the detectable label is a fluorescent label.

~~121.~~<sup>137</sup> A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (i) nucleotide 124 wherein X is T;
- (ii) nucleotide 439 wherein X is A;
- (iii) CT is inserted after nucleotide 1044;
- (iv) nucleotide 1331 wherein X is A;
- (v) nucleotide 1977 wherein X is A;
- (vi) nucleotide 2149 wherein X is A;
- (vii) nucleotide 2467 wherein X is G;
- (viii) nucleotide 2634 wherein X is G;
- (ix) nucleotide 2975 wherein X is A;
- (x) nucleotide 3116 wherein X is T;
- (xi) nucleotide 3255 wherein X is C;
- (xii) nucleotide 3344 wherein X is C;
- (xiii) nucleotide 4051 wherein X is A;
- (xiv) nucleotide 4782 wherein X is A;
- (xv) nucleotide 5022 wherein X is C;
- (xvi) nucleotide 5266 wherein X is A;
- (xvii) nucleotide 5285 wherein X is G;
- (xviii) nucleotide 5438 wherein X is A;
- (xix) nucleotide 5482 wherein X is T;
- (xx) nucleotide 5629 wherein X is A;
- (xxi) nucleotide 5648 wherein X is T; and
- (xxii) nucleotide 5731 wherein X is A;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

<sup>138</sup>  
~~122.~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof.

<sup>139</sup>  
~~123.~~ The isolated nucleic acid probe of claim <sup>138</sup>122 comprising at least two of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof.

<sup>140</sup>  
~~124.~~ The probe of claim <sup>138</sup>122 comprising no more than 500 contiguous nucleotides of SEQ ID NO:12.

<sup>141</sup>  
~~125.~~ The probe of claim <sup>138</sup>122 comprising no more than 200 contiguous nucleotides of SEQ ID NO:12.

<sup>142</sup>  
~~126.~~ The probe of claim <sup>138</sup>122 comprising no more than 100 contiguous nucleotides of SEQ ID NO:12.

<sup>143</sup>  
~~127.~~ The probe of claim <sup>138</sup>122 comprising no more than 50 contiguous nucleotides of SEQ ID NO:12.

<sup>144</sup>  
~~128.~~ The probe of claim <sup>138</sup>122 comprising DNA.

<sup>145</sup>  
~~129.~~ The probe of claim <sup>138</sup>122 comprising a peptide nucleic acid.

<sup>146</sup>  
~~130.~~ The probe of claim <sup>138</sup>122 further comprising a detectable label.

<sup>147</sup>  
~~131.~~ The probe of claim <sup>146</sup>130 wherein the detectable label is a fluorescent label.

<sup>148</sup>  
~~132.~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~133.~~<sup>149</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:13, the probe comprising at least one of:

- (a) nucleotide 1424 wherein X is A;
  - (b) nucleotide 1649 wherein X is A; and
  - (c) nucleotide 2554 wherein X is G;
- or the complement thereof.

~~134.~~<sup>150</sup> The isolated nucleic acid probe of claim ~~133~~<sup>149</sup> comprising at least two of:

- (a) nucleotide 1424 wherein X is A;
- (b) nucleotide 1649 wherein X is A; and
- (c) nucleotide 2554 wherein X is G;

or the complement thereof.

~~135.~~<sup>151</sup> The probe of claim ~~133~~<sup>149</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:13.

~~136.~~<sup>152</sup> The probe of claim ~~133~~<sup>149</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:13.

~~137.~~<sup>153</sup> The probe of claim ~~133~~<sup>149</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:13.

~~138.~~<sup>154</sup> The probe of claim ~~133~~<sup>149</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:13.

~~139.~~<sup>155</sup> The probe of claim ~~133~~<sup>149</sup> comprising DNA.

~~140.~~<sup>156</sup> The probe of claim ~~133~~<sup>149</sup> comprising a peptide nucleic acid.

~~141.~~<sup>157</sup> The probe of claim ~~133~~<sup>149</sup> further comprising a detectable label.

~~142.~~<sup>158</sup> The probe of claim ~~141~~<sup>157</sup> wherein the detectable label is a fluorescent label.

~~143.~~<sup>159</sup> A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:13, the probe comprising at least one of:
  - (a) nucleotide 1424 wherein X is A;
  - (b) nucleotide 1649 wherein X is A; and
  - (c) nucleotide 2554 wherein X is G;

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or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

144.<sup>160</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:14, the probe comprising at least one of:

- A1
- (a) nucleotide 263 wherein X is G;
  - (b) nucleotide 266 wherein X is T;
  - (c) nucleotide 527 wherein X is G;
  - (d) nucleotide 1037 wherein X is G;
  - (e) nucleotide 1139 wherein X is A;
  - (f) nucleotide 1217 wherein X is T;
  - (g) nucleotide 1647 wherein X is T;
  - (h) nucleotide 1955 wherein X is A;
  - (i) nucleotide 2017 wherein X is A;
  - (j) nucleotide 2037 wherein X is A;
  - (k) nucleotide 2189 wherein X is G;
  - (l) nucleotide 2282 wherein X is T; and
  - (m) nucleotide 2309 wherein X is G;

or the complement thereof.

145.<sup>161</sup> The isolated nucleic acid probe of claim <sup>160</sup>144 comprising at least two of:

- (a) nucleotide 263 wherein X is G;
- (b) nucleotide 266 wherein X is T;
- (c) nucleotide 527 wherein X is G;
- (d) nucleotide 1037 wherein X is G;
- (e) nucleotide 1139 wherein X is A;
- (f) nucleotide 1217 wherein X is T;
- (g) nucleotide 1647 wherein X is T;
- (h) nucleotide 1955 wherein X is A;
- (i) nucleotide 2017 wherein X is A;
- (j) nucleotide 2037 wherein X is A;
- (k) nucleotide 2189 wherein X is G;
- (l) nucleotide 2282 wherein X is T; and
- (m) nucleotide 2309 wherein X is G;

or the complement thereof.

146.<sup>162</sup> The probe of claim <sup>166</sup>144 comprising no more than 500 contiguous nucleotides of SEQ ID NO:14.

147.<sup>163</sup> The probe of claim <sup>160</sup>144 comprising no more than 200 contiguous nucleotides of SEQ ID NO:14.

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~~148~~<sup>164</sup> The probe of claim ~~144~~<sup>160</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:14.

~~149~~<sup>165</sup> The probe of claim ~~144~~<sup>160</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:14.

~~150~~<sup>166</sup> The probe claim ~~144~~<sup>160</sup> comprising DNA.

~~151~~<sup>167</sup> The probe of claim ~~144~~<sup>160</sup> comprising a peptide nucleic acid.

~~152~~<sup>168</sup> The probe of claim ~~144~~<sup>160</sup> further comprising a detectable label.

~~153~~<sup>169</sup> The probe of claim ~~152~~<sup>168</sup> wherein the detectable label is a fluorescent label.

~~154~~<sup>170</sup> A method comprising

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:14, the probe comprising at least one of:

- (i) nucleotide 263 wherein X is G;
- (ii) nucleotide 266 wherein X is T;
- (iii) nucleotide 527 wherein X is G;
- (iv) nucleotide 1037 wherein X is G;
- (v) nucleotide 1139 wherein X is A;
- (vi) nucleotide 1217 wherein X is T;
- (vii) nucleotide 1647 wherein X is T;
- (viii) nucleotide 1955 wherein X is A;
- (ix) nucleotide 2017 wherein X is A;
- (x) nucleotide 2037 wherein X is A;
- (xi) nucleotide 2189 wherein X is G;
- (xii) nucleotide 2282 wherein X is T; and
- (xiii) nucleotide 2309 wherein X is G;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

Sub B3  
A1  
~~155.~~<sup>171</sup> An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least one of:

- (a) nucleotide 120 wherein X is C;
- (b) nucleotide 464 wherein X is G;
- (c) nucleotide 519 wherein X is T;
- (d) nucleotide 668 wherein X is T;
- (e) nucleotide 1059 wherein X is C;
- (f) nucleotide 1289 wherein X is A;
- (g) nucleotide 1308 wherein X is C;
- (h) nucleotide 1784 wherein X is A;

or the complement thereof.

~~156.~~<sup>172</sup> The isolated nucleic acid probe of claim ~~155~~<sup>171</sup> comprising at least two of:

- (a) nucleotide 120 wherein X is C;
- (b) nucleotide 464 wherein X is G;
- (c) nucleotide 519 wherein X is T;
- (d) nucleotide 668 wherein X is T;
- (e) nucleotide 1059 wherein X is C;
- (f) nucleotide 1289 wherein X is A;
- (g) nucleotide 1308 wherein X is C;
- (h) nucleotide 1784 wherein X is A;

or the complement thereof.

~~157.~~<sup>173</sup> The probe of claim ~~155~~<sup>171</sup> comprising no more than 500 contiguous nucleotides of SEQ ID NO:15.

~~158.~~<sup>174</sup> The probe of claim ~~155~~<sup>171</sup> comprising no more than 200 contiguous nucleotides of SEQ ID NO:15.

~~159.~~<sup>175</sup> The probe of claim ~~155~~<sup>171</sup> comprising no more than 100 contiguous nucleotides of SEQ ID NO:15.

~~160.~~<sup>176</sup> The probe of claim ~~155~~<sup>171</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:15.

~~161.~~<sup>178</sup> The probe claim ~~155~~<sup>171</sup> comprising DNA.

~~162.~~<sup>179</sup> The probe of claim ~~155~~<sup>171</sup> comprising a peptide nucleic acid.

~~163.~~<sup>180</sup> The probe of claim ~~155~~<sup>171</sup> further comprising a detectable label.

~~164.~~<sup>181</sup> The probe of claim ~~163~~<sup>180</sup> wherein the detectable label is a fluorescent label.

Sub B3  
A1

<sup>182</sup>  
~~165.~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least one of:

- A1
- (i) nucleotide 120 wherein X is C;
  - (ii) nucleotide 464 wherein X is G;
  - (iii) nucleotide 519 wherein X is T;
  - (iv) nucleotide 668 wherein X is T;
  - (v) nucleotide 1059 wherein X is C;
  - (vi) nucleotide 1289 wherein X is A;
  - (vii) nucleotide 1308 wherein X is C;
  - (viii) nucleotide 1784 wherein X is A;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

<sup>183</sup>  
~~166.~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:16, the probe comprising at least one of:

- (a) nucleotide 575 wherein X is C;
- (b) nucleotide 648 wherein X is C;
- (c) nucleotide 771 wherein X is C;
- (d) nucleotide 883 wherein X is A;
- (e) C is inserted after nucleotide 941; and
- (f) nucleotide 1051 wherein X is C;

or the complement thereof.

<sup>184</sup>  
~~167.~~ The isolated nucleic acid probe of claim <sup>183</sup>~~166~~ comprising at least two of:

- (a) nucleotide 575 wherein X is C;
- (b) nucleotide 648 wherein X is C;
- (c) nucleotide 771 wherein X is C;
- (d) nucleotide 883 wherein X is A;
- (e) C is inserted after nucleotide 941; and
- (f) nucleotide 1051 wherein X is C;

or the complement thereof.

<sup>185</sup>  
~~168.~~ The probe of claim <sup>183</sup>~~166~~ comprising no more than 500 contiguous nucleotides of SEQ ID NO:16.

<sup>186</sup>  
~~169.~~ The probe of claim <sup>183</sup>~~166~~ comprising no more than 200 contiguous nucleotides of SEQ ID NO:16.

<sup>187</sup>  
~~170.~~ The probe of claim <sup>183</sup>~~166~~ comprising no more than 100 contiguous nucleotides of SEQ ID NO:16.

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*A1*  
~~171.~~<sup>188</sup> The probe of claim ~~166~~<sup>183</sup> comprising no more than 50 contiguous nucleotides of SEQ ID NO:16.

~~172.~~<sup>189</sup> The probe of claim ~~166~~<sup>183</sup> comprising DNA.

~~173.~~<sup>190</sup> The probe of claim ~~166~~<sup>183</sup> comprising a peptide nucleic acid.

~~174.~~<sup>191</sup> The probe of claim ~~166~~<sup>183</sup> further comprising a detectable label.

~~175.~~<sup>192</sup> The probe of claim ~~174~~<sup>191</sup> wherein the detectable label is a fluorescent label.

~~176.~~<sup>193</sup> A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:16, the probe comprising at least one of:

(i) nucleotide 575 wherein X is C;

(ii) nucleotide 648 wherein X is C;

(iii) nucleotide 771 wherein X is C;

(iv) nucleotide 883 wherein X is A;

(v) C is inserted after nucleotide 941; and

(vi) nucleotide 1051 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.--